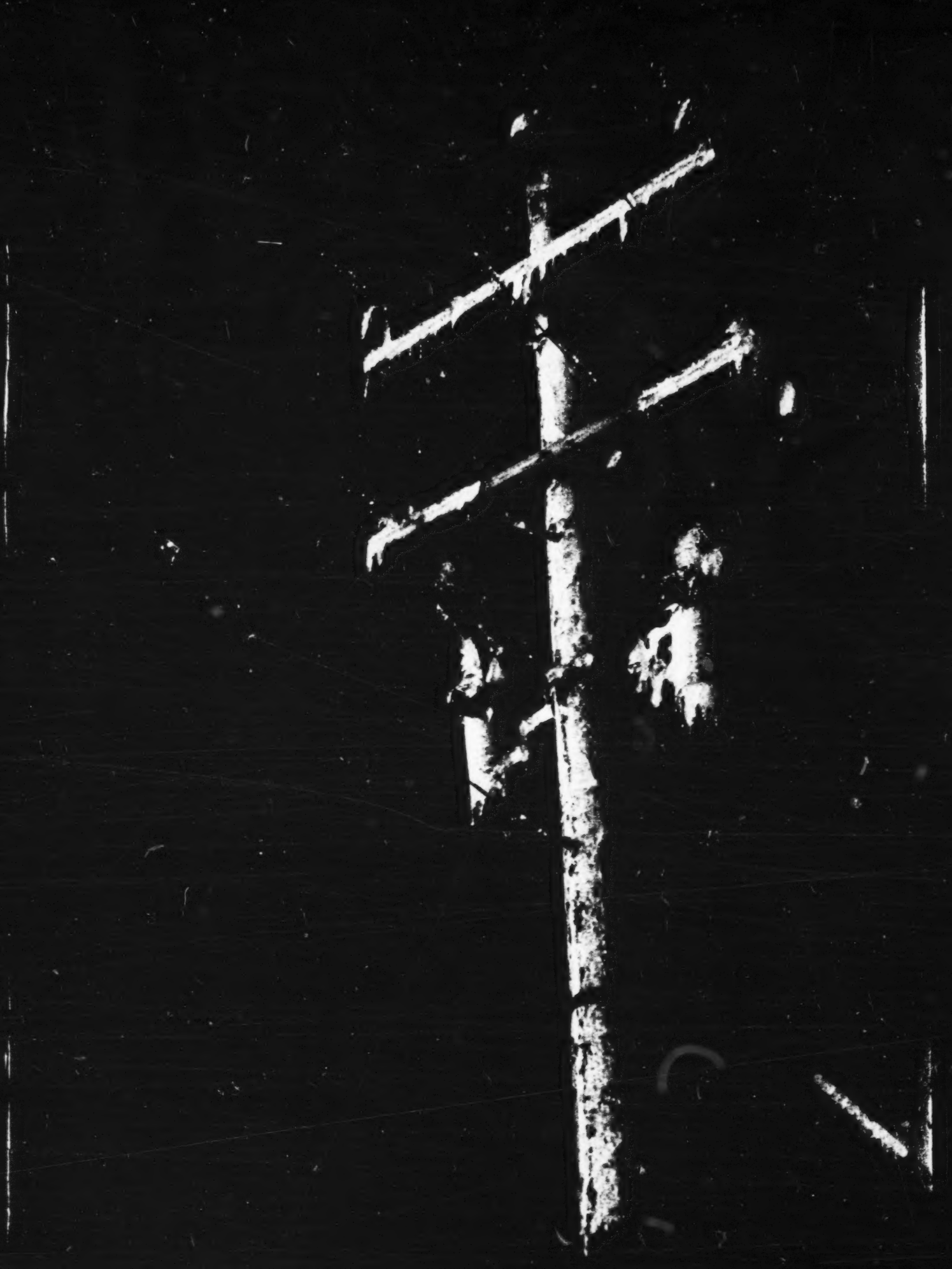


HIGHLIGHTS

MANITOBA INTEGRATED SYSTEM

- ★ Hydraulic generation increased by 21.9%
- ★ Manitoba firm energy supply decreased by 2.0%
- ★ Manitoba firm peak demand down 7.0%

MANITOBA HYDRO

- ★ Customers increased by 0.9% to 327 842
- ★ Expenses exceeded revenue by $19.1 million
- ★ Extraprovincial revenue increased 45.6% to $105.4 million
- ★ Energy sales within province decreased by 2.0% to $305.1 million

CONTENTS

Letter of Transmittal 1
Chairman's Message 2
President's Message 3
Annual Report 4
Financial Statistics 15
Operating Statistics 16
Financial Statements ..... F1 - F12
Generating Stations and Capacities ..... back cover

FRONT COVER
Breaking away ice to operate an oil circuit recloser.

BACK COVER
Ice-laden lines at sunset.

MANITOBA HYDRO

S. M. CHERNIACK, Q.C.
CHAIRMAN

P.O. BOX 815 · WINNIPEG, MANITOBA R3C 2P4

1983 07 08

The Honourable W. Parasiuk
Minister responsible for the
administration of The
Manitoba Hydro Act
Province of Manitoba
Legislative Building
Winnipeg, Manitoba
R3C 0V8

Sir:

I have the honour of presenting the Thirty-second Annual Report of The Manitoba Hydro-Electric Board together with financial statements for the fiscal year ended March 31, 1983.

Respectfully submitted,

Saul M. Cherniack, Q.C.
Chairman
Manitoba Hydro-Electric Board

CHAIRMAN'S MESSAGE

As a public utility owned by the people of the Province, Manitoba Hydro continues its excellent record of service to its thousands of customers — farm, residential, commercial and industrial. For this, we are indebted to the men and women of Hydro.

Despite a gradual letting-up of cost pressures during the year and a general improvement in river flows compared to the past couple of years, Manitoba Hydro's financial picture has shown only a minimal improvement. We are still operating in a deficit position as a result of the rate freeze and the incorrect interest and inflation assumptions made earlier in forecasting expenditures. Improvement is expected with the government's decision to remove the hydro rate freeze and grant an increase of 9.5% effective May 15, 1983. This increase will assist in moderating the extent to which rate increases will be required in the future to enable the utility to generate revenues that will allow Manitoba Hydro to match its expenses. With the co-operation of our elected officials and the understanding of our consumers, we expect to be able to improve the Corporation's financial position steadily and surely in the next few years. At that, residents of Manitoba will still continue to enjoy rates that will be the envy of other jurisdictions.

Along with "keeping the lights on" is the need to accept responsibility for Hydro's impact on society. Thus, we intend to work in close harmony with those who are responsible for laying the groundwork that will permit native communities which have suffered from Hydro's changing of the water regime to re-establish themselves as self-sufficient, economically viable entities. In co-operation with the Manitoba and Federal Governments, we have taken some significant steps in the past and we intend to make major strides in the future. In addition to a considerable amount of money already spent on remedial works, the utility has incurred millions of dollars worth of costs in compensation and arbitration settlements to affected parties. Final resolution of this outstanding problem involves a long-term process but with every succeeding action by the utility to fulfill its obligations, we are just that much closer to harmony and accord.

In a similar context, the Board has begun to review its policy with respect to employment opportunities within Manitoba Hydro for persons of native ancestry, women, and handicapped individuals. We are on the threshold of developing goals and objectives which will enhance the opportunity for participation by those members of minority groups who, until now, have been precluded from employment because of implied or imputed shortcomings. We have a long way to go toward a long-term commitment but senior management will soon be undertaking to develop an employment strategy that will meet the Board's objectives in a positive and meaningful manner.

I appreciate the dedicated and congenial manner in which members of the Board have carried out their responsibilities. The Board, itself, acknowledges the co-operation and support it has received from the Honourable Wilson Parasiuk, its reporting Minister, and from the Manitoba Government. It is grateful for the excellent relationship it enjoys with Hydro's management, and, on behalf of each member, I commend all employees of the utility for their continuing efforts to ensure that Manitoba Hydro lives up to its purpose under the Manitoba Hydro Act.

Saul M. Cherniack, Q.C.
Chairman, Manitoba Hydro-Electric Board

PRESIDENT'S MESSAGE

Manitoba Hydro's operations are substantially influenced by the amount of water available to run the utility's hydro-electric plants. The fiscal year ending March 31, 1983, was a relatively good year with slightly above average water conditions which resulted in a 22% increase in generation on the integrated system. During the year, over 99% of all the electricity generated was from hydraulic sources. This considerably enhanced Manitoba Hydro's ability to produce and sell surplus energy to extraprovincial markets.

Electrical energy generated by Manitoba Hydro for use in Manitoba was down from the previous year by 2.0%. There was a reduction in energy use by business and industry, which was partially offset by increased residential and farm consumption.

Sales of surplus energy to utilities outside the province totalled a record $105.4 million and accounted for approximately 25% of the Corporation's total revenues.

Despite this significant contribution to corporate revenues, expenses exceeded revenues for a third consecutive year. Every opportunity is being taken to control costs. A program to optimize both the organization and the staffing of the Corporation is underway.

Ice and wind storms this year were among the worst ever experienced by Manitoba Hydro. The total cost to the utility of repairs required as a result of storm damage is in the order of $3.3 million. The worst ice storm in the utility's history occurred in March when customers in a wide area of the province suffered outages, some lasting for several days. The patience, understanding, and assistance demonstrated by our customers during this difficult period are greatly appreciated.

As a result of the deterioration in Manitoba Hydro's financial position following three consecutive years during which expenses exceeded revenues, coupled with projections of future revenue deficiencies, a recommendation was made to the Board of Manitoba Hydro to increase electricity rates by 15.7% effective April 1, 1983, one year prior to the end of the five-year rate freeze. Without any increase, financial projections indicated reserves would have dropped to approximately $36 million by March 31, 1984. The government discontinued the rate freeze and authorized a 9.5% increase in rates, effective May 15, 1983. Despite this rate increase, electricity rates in Manitoba will still be among the lowest in North America.

Capital expenditures during the year were related to rehabilitation of older plants in order to extend the life of these facilities, to expansion of the high voltage direct current transmission system, and to additions to the distribution system.

Manitoba Hydro's ongoing contribution to the people of the province lies in its dedicated staff, effective use of capital assets, and the ability to produce and sell low-cost renewable electrical energy. The commitment to customer service by employees is evidenced by the reliability of the electrical service enjoyed by Manitobans. I am proud to say it ranks among the best in Canada.

J.J. Arnason
President and Chief Executive Officer

J.J. Arnason
PRESIDENT AND
CHIEF EXECUTIVE OFFICER

R.O. Lambert
Executive Assistant

The MANITOBA HYDRO-ELECTRIC BOARD
From left: Roy Minish; Charles E. Curtis, Vice-Chairman; Clyde R. McBain; Saul M. Cherniack, Chairman; Edmund Kuffel; Peter Fox, M.L.A.; Nora E. Losey.

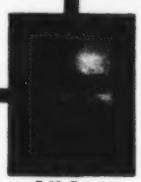
J.F. Funnell
General Counsel

SENIOR MANAGEMENT

C.J. Goodwin
Executive Manager
Corporate Planning

V.K. Prior
Manager, Public Affairs

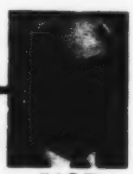
D.S. Duncan
Vice-President
Engineering & Construction



R.M. Fraser
Executive Vice-President
Corporate Services

H.L. Dahl
Vice-President
Operations

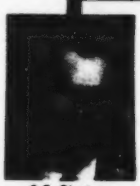
D.J. Sharman
Secretary



K.J. Fallis
Executive Engineer

G.C. March
Assistant Vice-President
Engineering & Construction

E.S. Pydee
Treasurer



C.E. Birston
Assistant Vice-President
Services

A.K. McKean
Assistant Vice-President
Finance

R.F. Manning
Assistant Vice-President
Human Resources

W.J. Tishinski
Assistant Vice-President
Operations

F.A. Macatavish
Corporate
Planning Officer

J.T. Aichison
Division Manager
Transmission
& Stations

R.D. Beesley
Division Manager
Computer Services

R.W. Thompson
Division Manager
Eastern Region

D.F. Keith
Division Manager
Central Region

W.G. Hargreaves
Division Manager
Western Region

D.B. Sinclair
Division Manager
Production

L. Ingram
Division Manager
System Planning

Manitoba Hydro is a Crown Corporation owned by the Province of Manitoba. Its purpose is "to provide for the continuance of a supply of power adequate for the needs of the province, and to promote economy and efficiency in the generation, distribution, supply, and use of power".

This Annual Report, including the audited statements, is prepared in accordance with The Manitoba Hydro Act. It is intended for the information of customers, bondholders and others who may have an interest in the business of the Corporation.

SERVICE AREA AND SYSTEM CAPACITY

Manitoba Hydro distributes electricity to consumers throughout the province except for the central portion of the City of Winnipeg, which is served by the city-owned Winnipeg Hydro. Manitoba Hydro and Winnipeg Hydro operate as an integrated electrical generation and transmission system. By agreement, Winnipeg Hydro is assessed a share of the costs of the integrated system and is allocated a share of extra-provincial revenue based on its proportion of the total Manitoba system peak demand and energy needs.

The total winter generating capacity of Manitoba Hydro's portion of the integrated electrical system as of March 31, 1983, was 3 901 150 kilowatts, consisting of 3 504 000 kilowatts of hydro-electric generation, 369 000 kilowatts of steam-electric generation, and 28 150 kilowatts of combustion-engine electric generation. The Winnipeg Hydro portion of the integrated system has a capacity of 190 000 kilowatts of which 140 000 is hydraulic.

As of March 31, 1983, Manitoba Hydro also had 20 isolated diesel-electric generating stations in service, ranging from 60 kilowatts to 11 248 kilowatts, aggregating 24 733 kilowatts, to supply electricity to remote communities not connected to the integrated electrical system.

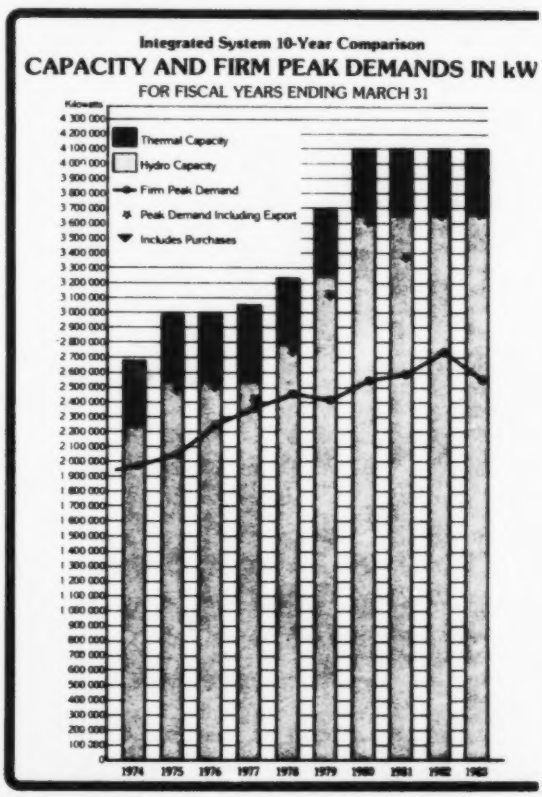
The Manitoba Hydro system at year end was interconnected with Ontario Hydro by two 230 000 volt lines and one 115 000 volt line; with Saskatchewan Power Corporation by three 230 000 volt lines and two 115 000 volt lines; and with utilities in the United States by one 500 000 volt line and two 230 000 volt lines.

Manitoba Hydro's service area encompasses a vast territory, 130 000 square kilometres. It is divided into three geographical regions to provide more effective customer service. The offices of the Western Region, Central Region and Eastern Region are located in Brandon, Winnipeg, and Selkirk respectively. Each is responsible for planning, designing, constructing, operating, and maintaining the electrical distribution system in its respective area.

CONSUMER STATISTICS

Manitoba Hydro residential and farm customers numbered 288 076 at March 31, 1983, an increase of 1.0% over the previous year. Power and general service customers decreased by 0.1% to 39 766. Street lights in service increased from 71 472 to 72 534.

More than 3 000 residences were connected to the system during the year of which over 50% were heated electrically. Four thousand other residences were converted to electric heating during the year, making a total of 63 000 electrically heated single family residences and 25 000 apartment units in the province.



SYSTEM OPERATION

Generally improved river flows resulted in a significant increase in hydraulic generation compared to the previous year. Combined with purchases, the total energy supplied to meet Manitoba and extraprovincial loads was 21 810 million kilowatt-hours compared to 18 661 million kilowatt-hours in the previous year, an increase of 16.9%.

Nelson River plants contributed 72.7% of all generation and purchases. The High Voltage Direct Current system transmitted 13 299 million kilowatt-hours which was 61.2% of the electricity generated in Manitoba during the year.

Manitoba's peak load of the fiscal year occurred on December 8, 1982, when 2 543.0 megawatts were required to meet customer demand. That peak was 7% less than the peak recorded during the previous fiscal year.

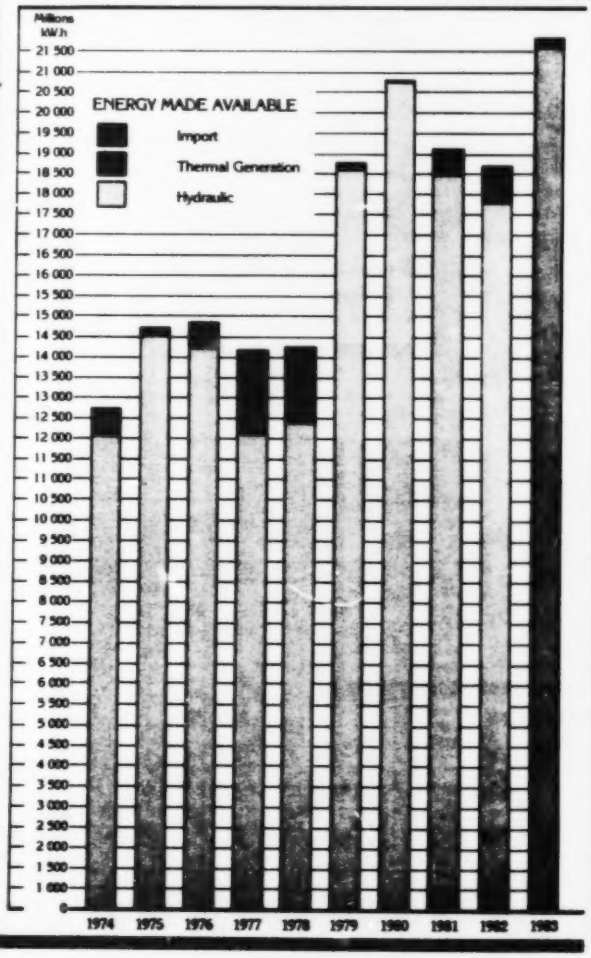
Firm energy required to supply Manitoba customers totalled 13 260 million kilowatt-hours, a decrease of 2% from the previous year. The decrease is attributed to reduced operations by industrial customers and to a relatively mild winter.

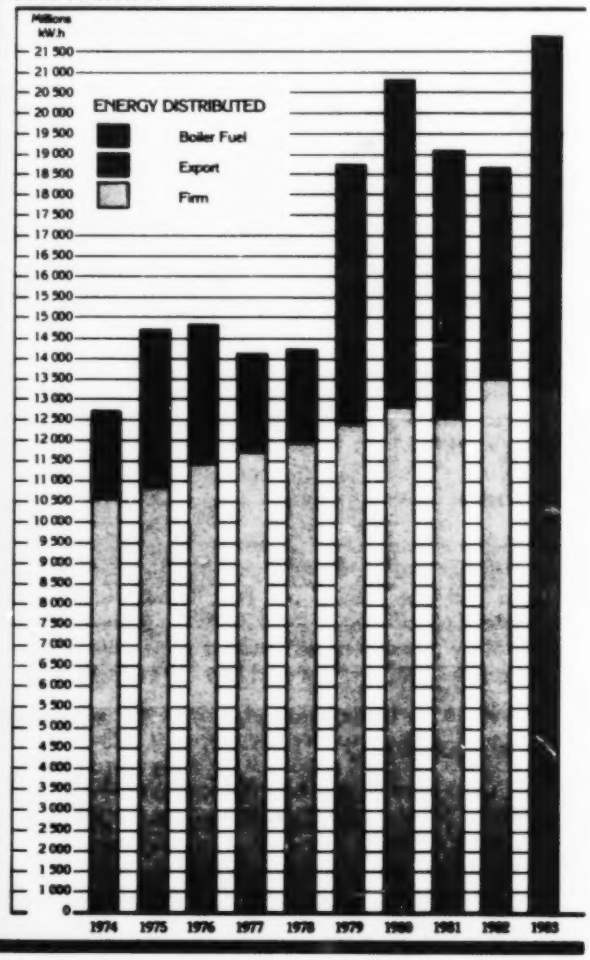
Energy delivered to extraprovincial markets totalled 7 614 million kilowatt-hours, an increase of 66% over the previous year. The increase reflects the improved water conditions compared to the previous year. Supply of diesel-electric energy to isolated northern communities totalled 47.3 million kilowatt-hours, an increase of 3.4%.

Integrated System 10-Year Comparison

ENERGY GENERATION, PURCHASES AND SALES IN MILLIONS OF kW.h

FOR FISCAL YEARS ENDING MARCH 31





Notable Events

Severe high winds on July 16, 1982, caused the collapse of a section of the double circuit 230 kilovolt lines on the Winnipeg floodway. Five steel towers were destroyed and two others damaged. These circuits were restored in four days by bypassing the damaged section with a wood pole line until the damaged towers could be replaced. No customers were affected by the interruption of transmission.

Severe icing conditions in the southwestern and central parts of the province between February 27 and March 10, 1983, caused widespread service interruptions which for some farm customers lasted up to five days. A work force numbering, at peak, 944 staff and local volunteers worked throughout the emergency on ice removal and service restoration. On many lines, ice had to be removed four times because of the rapid buildup. Ice was removed from 7 332 kilometres of line by a rolling procedure and 4 070 kilometres were cleared by the melting method. Because of damage, 1 216 poles and 956 crossarms had to be replaced and numerous conductor repairs were necessary.

FINANCE

The excess of expense over revenue of $19.1 million reduced the total reserves of the Corporation to $82.0 million. Compared to the previous year, revenue increased by 7.0% to $414.7 million while total expenses increased by 5.3% to $433.8 million.

After two consecutive years of below median flows, slightly above median flow conditions were experienced during the current year. Hydraulic generation increased by 20.9% or 3.5 billion kilowatt-hours to a total of 20.4 billion kilowatt-hours. The increased hydraulic generation permitted increased exports, resulting in an increase in extraprovincial revenue of 45.6% to $105.4 million and a reduction in fuel and power purchases of 51.0% to $8.2 million.

The revenue decrease of 2.0% for energy sales within the province was due mainly to the reduced consumption by industrial customers. This was partially offset by increased residential use, stemming from the number of oil conversions to electric heat.

Operating and administrative expenses increased by $20.7 million or 16.0% to $150.1 million. This increase was attributed to a combination of factors, including ice and wind storm damage of $3.3 million, an increase of $2.2 million in water rentals, a $1.6 million increase in transmission line lease payments, and an increase of $13.6 million in other operating expenses. The increases in interest net and depreciation were 4.0% and 2.6% respectively.

Additions to fixed assets were $129.0 million compared to $104.0 million in the previous year. Capital expenditures were incurred for the rehabilitation programs at Great Falls and Seven Sisters Generating Stations; the Limestone Generating Station (mainly for interest allocated to construction in progress); the Direct Current Conversion System for the Nelson River transmission facilities; the Flin Flon-The Pas transmission line; and for additions, modifications, and service extensions throughout the system.

For the purpose of financing capital construction expenditures and refunding debt during the year, the Corporation received advances totalling $277.5 million from the Province of Manitoba as follows:

$61.4 million ($50.0 million U.S.) from the issue of Province of Manitoba 13.75% debentures — Series 11L due September 29, 1989. Canadian equivalent interest rate — 15.3%.

$61.3 million ($50.0 million U.S.) from the issue of Province of Manitoba 11.75% debentures — Series 11N due November 15, 1989. Canadian equivalent interest rate — 13.25%.

$150.0 million from the issue of Province of Manitoba 11.75% debentures — Series 11R due March 15, 1993.

$4.8 million under a Government of Canada loan agreement with interest at 12% repayable in equal annual installments, to March 31, 2015.

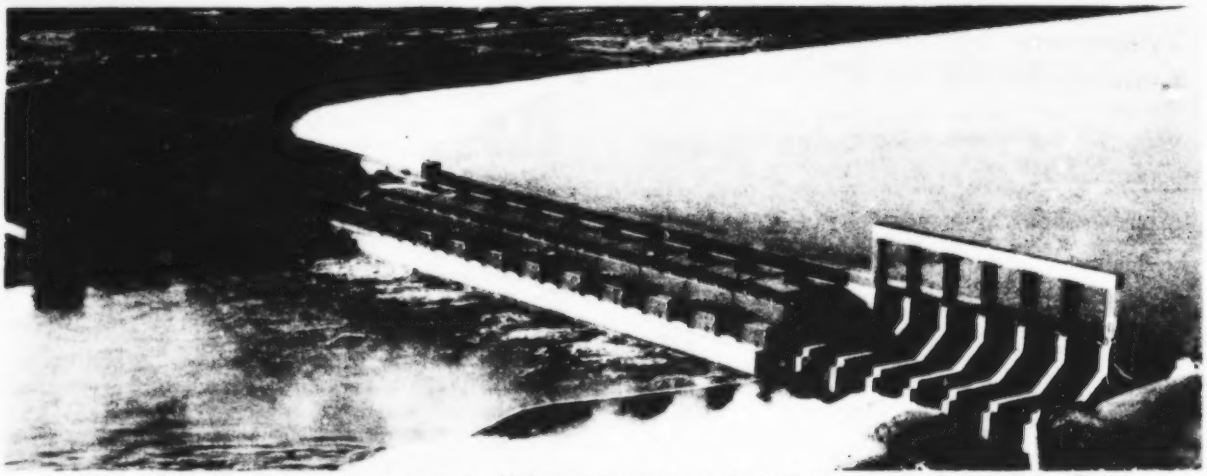
During the year, orders were placed for goods and services in the amount of $89.7 million, of which $48.5 million was for goods manufactured in Manitoba, or for services performed in Manitoba.

Rate Freeze

Power rates for all Manitoba consumers other than bulk purchasers and those on separate contracts have remained fixed since April 1, 1979. On February 3, 1983, the Government of Manitoba announced approval for an across-the-board rate increase of 9.5% effective May 15, 1983.

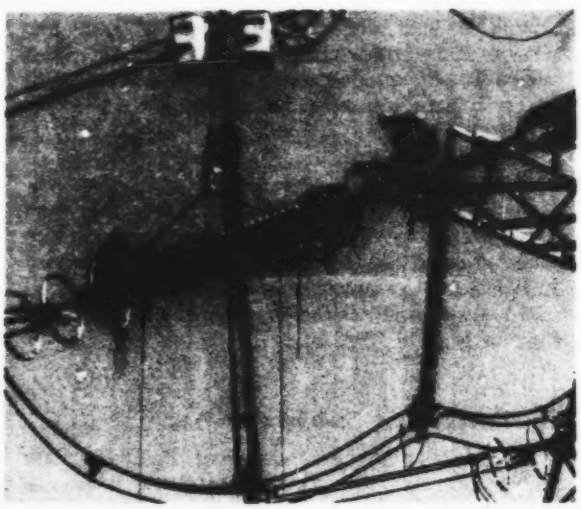
The Energy Rate Stabilization Act

In accordance with the provisions of The Energy Rate Stabilization Act, the servicing costs associated with Manitoba Hydro's foreign debt have been assumed by the Province of Manitoba and replaced with Canadian equivalent costs based on Canadian rates for similar terms as at the date the debt was incurred. The Province has confirmed to Manitoba Hydro that the net expenditures relating to the foreign debt sustained



Long Spruce Generating Station with a total capacity of 980 megawatts harnesses the fast-flowing waters of the lower Nelson River near Gillam to provide power for the province's integrated electrical system.

by the Province in the current year amounted to $6.5 million which, if borne by the Corporation, would have increased accordingly the excess of expense over revenue, as set out in the financial statements. This net amount consisted of foreign debt costs which exceeded the respective Canadian equivalent costs by $20.2 million, reduced by $13.7 million of foreign debt costs which were less than the respective Canadian equivalent costs. The corresponding net expenditures for the previous year were $29.1 million.



A skilled and highly-trained line crew replaces a string of insulators on the 500 000 volt AC transmission line interconnection to the United States. Manitoba Hydro's safety record continues to be among the best of the major electrical utilities in Canada.

SYSTEM DEVELOPMENTS

Generation

Based on current forecasts of Manitoba's demand for electric power and energy, the indicated in-service date of the Limestone Generating Station is 1992.

Conawapa Generating Station concept studies have been completed for two different dam axes. Studies for a possible Gillam Island Generating Station, located downstream from Conawapa have been updated.

A study comparison has been completed for the Whitemud and Red Rock sites on the Upper Nelson River. Further concept studies on the Whitemud site are scheduled for completion in March, 1984. Concept studies on the Burntwood River potential are continuing in order to determine the best alternative smaller generation site should one be required in the future.

Rehabilitation work completed at Great Falls Generating Station during the year included reinforcing, grouting, and installation of a frost protection system on powerhouse walls associated with Units 4, 5 and 6. During 1983, similar repairs will be made to Units 2 and 3. Unit 1 repairs are scheduled for 1984.

Scheduled rehabilitation was completed at Seven Sisters Generating Station during the year. Some additional work has been defined and is scheduled for completion in 1983. This includes concrete repairs on the spillway, sluiceway and tailrace decks.

During the summer of 1982, a repair program was carried out at Laurie River Generating Station No. 1 and Russell Control Dam.

Work commenced on installation of facilities at Selkirk Generating Station to permit conversion of

Units 1 and 2 to operation as synchronous condensers. The work is scheduled for completion during the summer of 1983.

A 600 kilowatt diesel generating station and distribution system was placed in service in October, 1982, at Tadoule Lake, a community located near the 59th parallel in northern Manitoba, providing the community with electric service for the first time. Diesel stations at Jackhead and Bloodvein were decommissioned during the spring of 1983 and the communities were connected to the provincial grid.

Work continued during the year on the all-weather road from Split Lake to Long Spruce Generating Station. The road is being constructed by the Manitoba Department of Highways on a cost-sharing basis with Manitoba Hydro. It is scheduled for completion in the summer of 1983.

HVDC Transmission

During 1982, Manitoba Hydro successfully completed parallel operation tests on the Nelson River transmission system. This is internationally recognized as a major engineering achievement toward ultimate application of multi-terminal direct current transmission systems. The Nelson River transmission system presently has two HVDC lines running south to Dorsey Station near Winnipeg. Each line has associated AC/DC converter facilities at either end. If one line were temporarily lost due to tower failure, for example, the "orphaned" facilities would be paralleled on to the healthy line, thus ensuring full power from the Nelson over one DC line.

Work continued on expansion of the existing HVDC converter stations to double the capacity of present Bipole 2 facilities from 900 megawatts to 1800 megawatts. The expansion will increase the Nelson River DC transmission capacity to a total of 3420 megawatts, thereby improving the reliability and performance of the HVDC transmission system.

Under contract with the Manitoba HVDC Research Centre, Manitoba Hydro is participating in two major research projects. One involves the development of digital computer programs for the study of multi-terminal HVDC systems and for the development of system planning guidelines for the use of multi-terminal HVDC systems.

The second project relates to the long-term statistical measurement of radio interference and other corona-related phenomena on the Nelson River HVDC lines. The purpose is to provide useful line design data and input for future standards.

As a result of earlier research and experimentation, a regular program of infrared scanning of the converter station equipment was instituted in 1982. Infrared scanning is an efficient means of locating incipient faults on energized electrical equipment. To date, several faults have been located and corrected, thereby minimizing equipment damage.

AC Transmission and Distribution

The first phase of a 5-year program to extend the 66 kV line from Manigotagan to communities along the eastern shore of Lake Winnipeg resulted in the community of Bloodvein being connected to central

Dorsey Converter Station on the northwestern outskirts of Winnipeg converts high voltage direct current power received from the Nelson River generating stations to alternating current for distribution to the electrical network.

service on March 24, 1983. Later stages of the project will provide service to Berens River, Poplar River, Little Grand Rapids and Pauingassi. The program is being financed jointly by the Department of Indian Affairs and Northern Development and by Manitoba Hydro.

Construction of an 88 km 230 kilovolt transmission line between The Pas and Cranberry Portage was completed in early March, 1983. This connects with an existing line between Cranberry Portage and Flin Flon which will be converted from 25 kilovolt to 230 kilovolt operation. The new line with its associated stations and communications facilities will firm up the power supply in the Flin Flon area and will provide an avenue for Saskatchewan's Island Falls plant generation to be wheeled through Manitoba's system to southern Saskatchewan.

A new 25 kilovolt supply for Cranberry Portage, originating at the Flin Flon-Ross Lake Station, was planned, designed, and built.

A new 66-12 kilovolt woodpole station was constructed at Glenella in western Manitoba.

Additions and modifications were completed at the following existing terminal stations: Ashern, Dorsey, Harrow, Letellier, Long Spruce, Rosser, St. Leon, St. Vital and Whiteshell.

Additions or modifications were completed at 18 existing distribution stations.

In conjunction with highway improvements, 18.9 kilometres of subtransmission line and 145.6 kilometres of distribution lines were relocated.

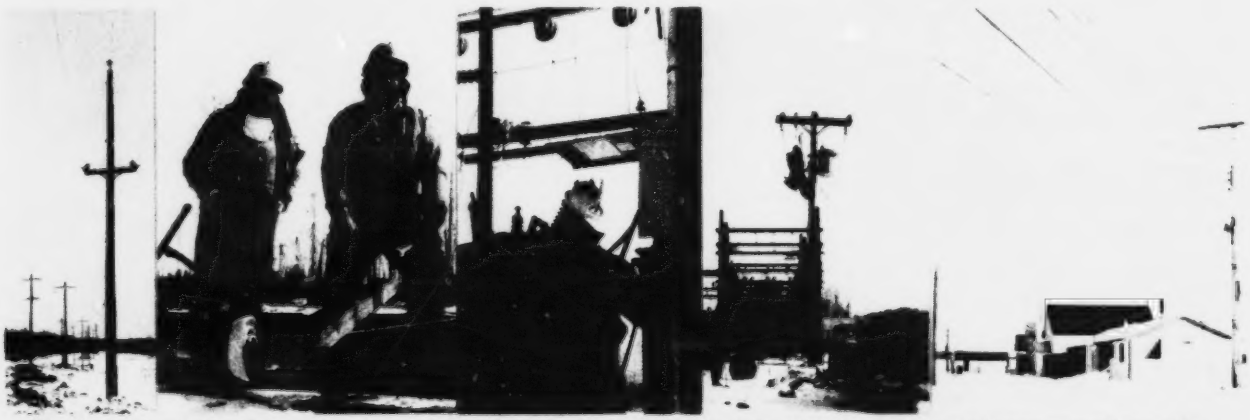
Procedures were developed to melt ice off 33 and 66 kilovolt lines in the interlake area as well as 115 kilovolt lines at Parkdale. The techniques proved to be very useful in the ice storm experienced in the spring of 1983. Plans are being made to increase the number of locations where ice melting can be carried out.

There are over 400 000 Manitoba-produced jack pine poles in the province's distribution system; many have been in service for over 30 years. Some of these poles have started to show signs of deterioration due to rot. Manitoba Hydro has undertaken a major program of treating poles at groundline in order to extend the serviceability of the poles by at least 15 years. Approximately 34 000 poles were treated in 1982 by small independent contractors, employing local help. This was the first year of a multi-year project.

Interconnections

Route selection activities continued on the MANDAN Project, a 500 kilovolt transmission line which will enable energy to be exchanged between Manitoba Hydro and the Nebraska Public Power District on a seasonal basis.

In the spring of 1982, the Provincial Government approved a 32 kilometre wide macro-corridor from Dorsey Station near Rosser to the U.S. border within which the Manitoba portion of the transmission line will be located. Since that time, Manitoba Hydro and a government Technical Advisory Committee have been jointly involved in developing a process for selecting a route as a preliminary to obtaining regulatory approval. This has involved meetings with municipal councils and contacts with numerous landowners and interest groups to provide them with information and obtain their input to the route selection process. A number of alternative routes have been identified and a preferred route will be



Bloodvein River Indian Reserve was connected to the provincial grid on March 24, 1983. It was the first of five communities on the east side of Lake Winnipeg that will get central station power during a five-year program. Extension of network power to Bloodvein made it possible to retire the 525-kilowatt diesel-electric generating installation that had served the community since 1969.

selected. Provincial Government approval of the preferred route will be sought, following the receipt of which application will be made to the National Energy Board for approval of the project. The interconnection is presently scheduled to go into service in the spring of 1989.

Preliminary discussions and studies related to potential major long-term power sales were conducted with members of the Wisconsin-Upper Michigan System (WUMS), the Western Area Power Administration (WAPA), and the Northern States Power Company.

Northern Flood Agreement

Activities related to the Northern Flood Agreement proceeded at an accelerated pace. Although many issues are still being forwarded to the Arbitrator, Manitoba Hydro has attempted to substitute more direct negotiations amongst the parties.

As of March 31, 1983, thirty-eight claims have been filed with the Arbitrator. It is expected that many will be resolved through ongoing negotiations without the need of arbitration.

Among the mitigation projects undertaken during the year were:

- Initial site improvements for a recreation centre at Cross Lake. The work was done under contracts with the Cross Lake Indian Band. The general contract for design and construction of the arena was awarded in March, 1983, and the project is scheduled for completion in December, 1983.
- Access road repairs, clearing, and bank slope protection were carried out at Nelson House by the Nelson House Band under contract with Manitoba Hydro.
- Awarding of a contract to the Nelson River Group of consultants to review solutions available for reducing the adverse effects of Lake Winnipeg regulation on Cross Lake.

SAFETY

Manitoba Hydro was ranked by the Canadian Electrical Association as having the third best overall safety record of the 14 major electrical utilities in Canada during the 1982 calendar year. This marks the 19th consecutive year that the Corporation has ranked among the top three. The number of disabling injuries per million man-hours worked was 6.6 which is the lowest ever recorded in the Corporation and down from 7.0 recorded the previous year. The number of man-hours lost due to disabling injuries decreased from 3 615 to 1 103 per million man-hours worked.

The frequency of preventable motor vehicle accidents in the Corporation fleet was 2.2 accidents per million kilometres driven. The rate for the previous year was 2.0.

There was one employee fatality during the fiscal year. A 32-year-old journeyman electrical technician was killed in an explosion February 23, 1983, while transferring fuel to a tanker truck at Jackhead Diesel Generating Station.

One public fatality occurred during the year as a result of a high voltage contact. A Winnipeg man was electrocuted when he contacted a broken conductor energized at 2 400 volts. The conductor was broken when the car in which he had been a passenger struck a utility pole.

An active environmental protection program was undertaken to deal with polychlorinated biphenyls (PCBs), and petroleum oil spills.

The Corporation continued to work with service groups, government agencies, and schools to promote electrical safety. Considerable work has been done in rural areas acquainting farmers with the hazards of electricity in farm related work.

Manitoba Electrical Code

The Manitoba Hydro-Electric Board authorized the Third Edition of the Manitoba Electrical Code which was issued as Manitoba Regulation 166/82. The Manitoba Electrical Code sets out the standards governing all electrical work and electrical equipment except within the City of Winnipeg and for mines and quarries. Safety of the public is a primary concern of the Code and the rules reflect the need to prevent fires and electrical hazards.

A two-year renewal agreement between Manitoba Hydro and the Canadian Union of Public Employees (CUPE), Local No. 998, was signed on February 24, 1983. Local CUPE President, B.F. (Bernie) Quennelle, joins Hydro's President and Chief Executive Officer, J.J. (John) Arnason, for the signing.

ENERGY CONSERVATION

As a Member of the Canadian Electrical Association, Manitoba Hydro continued sponsorship of the DOUBLE E Energy Efficient Buildings Program.

Energy education school kits were prepared during the year to teach wise use and good electrical safety habits to approximately 74 000 Manitoba students from kindergarten to grade four.

Manitoba Hydro displays advocating energy efficiency were featured at major shows and fairs in Winnipeg, Brandon, Morden, Portage la Prairie, Carman, and Dauphin. Two display trailers were featured at rural fairs during the summer months.

Manitoba Hydro has undertaken a Canadian Electrical Association funded research project to determine the "Potential for Energy Conservation and Peak Load Shaving" using thermostatically controlled devices, such as Power Saver Cords, to control operation of vehicle block heaters and car warmers. Thirty-five vehicles were involved during the December-March test period.

Manitoba Hydro, in conjunction with local Chambers of Commerce, held public displays on aerial thermography in The Pas and Flin Flon areas. Local manufacturers and trades participated by erecting displays on energy efficient products.

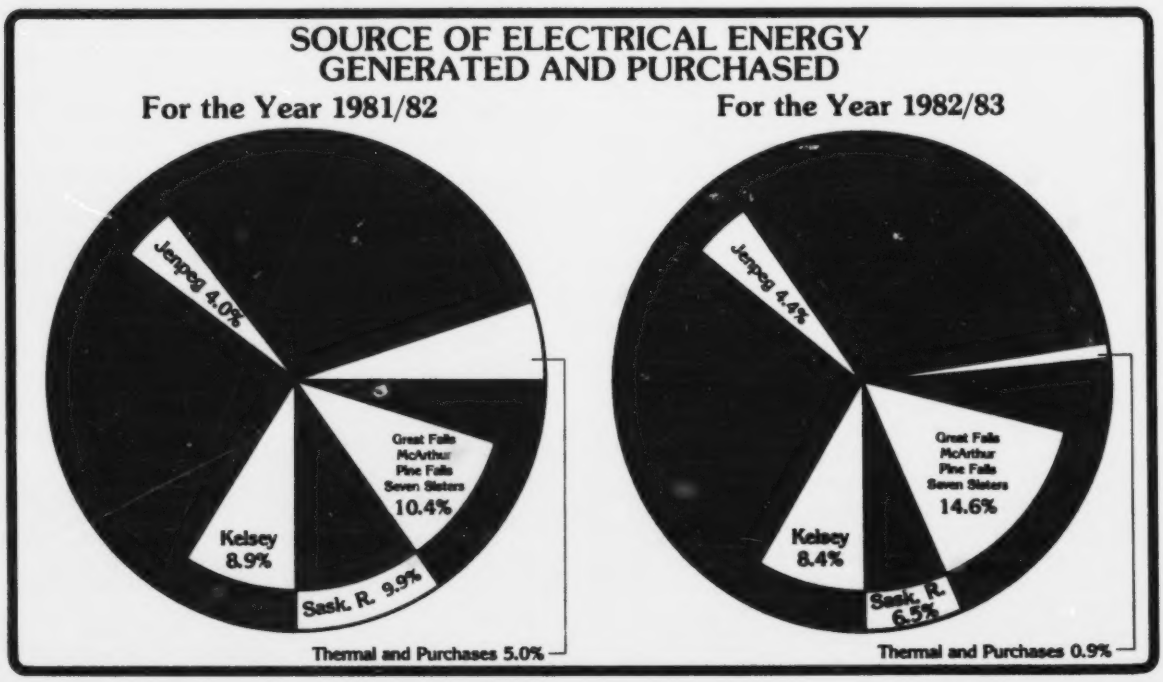
EMPLOYEE RELATIONS

Peak employment occurred in August, 1982, with 3 859 employees; this compares to 3 850 in August, 1981. This does not take into account the number of short term, temporary employees hired as a result of the March ice storm.

During the year, 2 425 employees participated in a variety of in-house technical, skill development, supervisory, and management training programs.

Three collective agreements covering employee groups of Manitoba Hydro expired during the year, two of which were successfully negotiated for renewal with the bargaining units as follows:

- The two-year agreement with the International Brotherhood of Electrical Workers expired June 2, 1982. A one-year renewal agreement, which expires on June 1, 1983, was signed and implemented on September 8, 1982.
- The two-year agreement with the Canadian Union of Public Employees, Local 998, expired December 29, 1982. A two-year renewal agreement, which expires December 26, 1984, was signed and implemented on February 24, 1983.
- The two-year agreement with the Association of Staff and Supervisory Employees expired March 23, 1983. Negotiations for a renewal agreement were still in progress at year end.



The Nelson/Burntwood Collective Agreement with the Allied Hydro Council was signed on May 5, 1982. The agreement covers contracted construction work for the development of major hydro-electric generating stations in northern Manitoba and is an amendment and extension of the previous Henday/Limestone Agreement. Extension of the agreement was necessitated by the deferral of the Limestone Project. The agreement was extended to December 31, 1995, with the scope expanded to include all potential stations on the Nelson River, downstream from Cross Lake, and on the Burntwood River.

PUBLIC AFFAIRS

Several thousand brochures and information pieces about Manitoba Hydro were distributed during the year, complying with requests from students, teachers, visitors, and customers. Manitoba Hydro's free library of films continued to meet the steady demand for audiovisual material. A number of news statements were issued to the media during the year. This ongoing need for printed and audiovisual information is a measure of public interest in the affairs of the Corporation.

ACKNOWLEDGEMENTS

The Board wishes to thank Manitoba Hydro employees for their continued dedication. Special congratulations are extended to employees whose long service was recognized during the year. Among them were 144 who received 15-year service pins and 96 who received 25-year pins. Thirty-five employees attained 35 years of service and there was one employee who reached the 40-year milestone. A total of 49 retirements took place.

Laurie D. Blachford

The Manitoba Hydro-Electric Board also wishes to acknowledge the contribution made by Laurie D. Blachford who served the utility as President and Chief Executive Officer from January, 1980, to January, 1983.

Mr. Blachford demonstrated a sincere concern about Hydro activities and a geniune interest in Hydro staff, earning the respect of those who worked with him and served under his leadership.

His knowledge and opinions are well regarded throughout the electrical industry.

Photo courtesy C.N.R.

Assured supplies of electrical energy produced by Manitoba Hydro provide the abundance of inexpensive power needed to serve Manitoba's varied industrial requirements.

Photo courtesy Versatile Farm Equipment Corporation

ICE STORM, MARCH, 1983— The ice storm that beset southern Manitoba in early March, 1983, was the most widespread and of the longest duration ever experienced by Manitoba Hydro. More than 24 500 customers were without power for varying periods of time.

About 950 workers were involved in repair and ice removal operations in an area ranging from the Saskatchewan border to Winnipeg and from the U.S. border northward for about 160 kilometres — and the work went on around the clock for several days.

It was no easy task and the utility is proud of all those Hydro employees who combined their efforts to safeguard the supply of electrical energy to as many of Manitoba Hydro's customers as possible. It was an example of teamwork at its best — a classic demonstration of the indomitable Manitoba spirit.

Financial Statistics

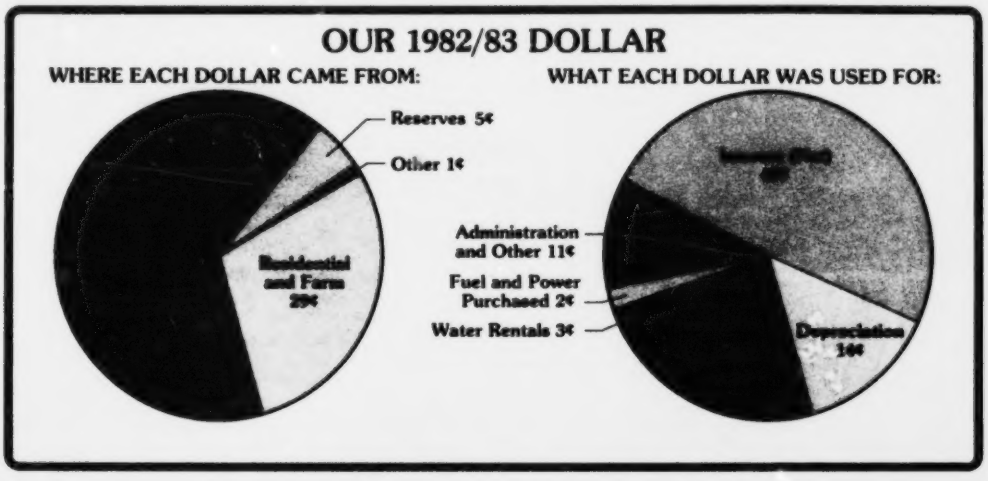
(in thousands of dollars)

	1983	1982	1981	1980	1979	1978	1977	1976	1975	1974
CONSOLIDATED STATEMENT OF OPERATIONS										
Revenues										
Residential and Farm	**126 684**	123 629	115 364	117 161	105 999	86 902	71 811	55 316	42 100	33 290
Power, General Service and Misc.	**151 203**	154 579	135 064	132 762	118 795	100 720	85 526	70 801	58 055	48 698
Winnipeg Hydro (Cost Sharing Agreement)	**27 180**	33 146	26 682	25 435	18 865	17 910	16 073	10 026	7 623	6 608
Extraprovincial	**105 411**	72 384	81 965	95 965	82 055	34 634	17 383	20 841	20 109	12 357
Other Revenue	**4 217**	3 865	2 768	3 022	2 817	2 829	2 034	1 768	1 737	1 390
	414 695	387 603	361 843	374 345	328 531	242 995	192 827	158 752	129 624	102 343
Expenses										
Operating and Administrative	**150 078**	129 413	114 398	93 746	81 525	72 385	62 617	52 763	45 630	36 336
Depreciation	**61 718**	60 127	57 793	53 313	43 963	35 610	30 103	25 683	23 602	21 264
Fuel and Power Purchased	**8 192**	16 711	9 973	5 592	3 985	22 695	28 179	5 879	3 125	4 081
Interest—Net	**213 836**	205 544	195 947	176 091	153 395	113 568	76 019	64 659	53 055	44 702
	433 824	411 795	378 111	328 742	282 868	244 258	196 918	148 984	125 412	106 383
Net Revenues Transferred to (from) Reserves	**(19 129)**	(24 192)	(16 268)	45 603	45 663	(1 263)	(4 091)	9 768	4 212	(4 040)
CONSOLIDATED BALANCE SHEET										
Assets										
Plant In Service	**2 945 435**	2 891 325	2 808 938	2 659 268	2 376 777	1 814 239	1 461 030	1 237 092	1 113 157	1 005 142
Less: Accumulated Depreciation	**584 534**	524 720	469 158	413 720	363 462	321 187	288 084	260 950	236 991	215 395
Construction in Progress	**272 013**	202 544	188 792	244 175	399 277	765 897	799 464	680 195	460 393	302 957
Current and Other Assets	**251 561**	156 665	121 269	131 528	179 590	143 005	213 410	137 750	75 527	61 705
	2 884 475	2 725 814	2 649 931	2 621 251	2 592 182	2 401 954	2 185 820	1 794 087	1 412 086	1 154 409
Liabilities and Equity										
Long-Term Debt—net	**2 367 561**	2 297 887	2 230 803	2 221 647	2 298 726	2 167 919	1 989 939	1 616 132	1 224 942	1 001 958
Current and Other	**434 887**	326 771	293 690	257 988	197 443	183 685	142 891	120 683	139 531	108 996
Reserves	**82 027**	101 156	125 348	141 616	96 013	50 350	52 990	57 262	47 613	43 455
	2 884 475	2 725 814	2 649 841	2 621 251	2 592 182	2 401 954	2 185 820	1 794 087	1 412 086	1 154 409
CONSOLIDATED STATEMENT OF CHANGES IN FINANCIAL POSITION										
Sources of Funds										
Funds from Operations	**48 317**	42 085	47 251	104 442	93 993	38 229	29 000	38 333	30 166	19 125
Proceeds from Long-Term Debt	**273 963**	175 393	109 560	1 961	189 038	229 814	398 930	404 580	265 461	172 143
Other	**4 726**	3 752	10 097	3 791	4 204	4 580	2 150	2 447	(546)	186
	327 006	221 230	166 908	110 194	287 235	272 623	430 080	445 360	296 081	191 454
Application of Funds										
Additions to Fixed Assets	**128 956**	103 954	99 634	132 703	199 625	323 918	347 774	347 314	268 651	199 770
Decrease in Long-Term Debt	**172 840**	75 387	70 100	47 600	31 777	31 014	10 390	2 843	31 494	32 786
Sinking Fund Payment	**35 514**	33 640	32 055	31 463	29 360	26 291	21 491	17 404	14 528	12 568
	337 310	212 981	201 789	211 766	260 762	381 223	379 655	367 561	314 673	245 124
Increase (Decrease) in Working Capital	**(10 304)**	8 249	(34 881)	(101 572)	26 473	(108 600)	50 425	77 799	(19 592)	(53 670)

Operating Statistics

	1983	1982	1981	1980	1979	1978	1977	1976	1975	1974
INTEGRATED SYSTEM— MANITOBA HYDRO AND WINNIPEG HYDRO										
Installed Winter Capability (000 kW)	**4 091**	4 091	4 091	4 091	3 678	3 202	2 985	2 985	2 985	2 667
Manitoba Firm Peak Demand (000 kW)*	**2 543**	2 735	2 575	2 519	2 419	2 445	2 356	2 239	2 062	1 972
Percentage change	**-7.0**	+6.2	+2.2	+4.1	-1.1	+3.8	+5.2	+8.6	+4.6	+10.5
Energy Supplied (000 000 kW.h)										
Manitoba Hydro Generation	**20 538**	17 372	17 975	19 690	17 600	12 669	12 739	13 732	13 722	11 783
Winnipeg Hydro Generation	**1 158**	813	848	1 111	1 153	766	828	1 104	1 040	966
Energy Purchased										
Hudson Bay Mining and Smelting	**0**	0	38	28	4	93	87	27		
Ontario	**0**	0	0	0	0	21	0	3	0	6
Saskatchewan	**71**	179	15	1	1	5	3	4	8	26
United States	**43**	297	203	0	4	721	528	27	1	7
Total Generated and Purchased	**21 810**	18 661	19 079	20 830	18 762	14 275	14 185	14 897	14 771	12 788
Firm Energy Supplied for Manitoba Integrated System* (000 000 kW.h)	**13 260**	13 527	12 529	12 797	12 483	11 962	11 768	11 430	10 872	10 591
Isolated Systems Generated and Purchased (000 000 kW.h)	**47**	46	47	50	53	52	53	53	48	46
Total Integrated and Isolated Systems (000 000 kW.h)	**13 307**	13 573	12 576	12 847	12 536	12 014	11 821	11 483	10 920	10 637
Percentage Change	**-2.0**	+7.9	-2.1	+2.5	+4.3	+1.6	+2.9	+5.2	+2.7	+11.0
MANITOBA HYDRO SYSTEM										
Energy Sold (000 000 kW.h)										
Residential and Farm	**3 922**	3 765	3 536	3 600	3 616	3 387	3 283	3 007	2 655	2 436
Power, General Service and Misc.	**5 726**	6 068	5 587	5 585	5 328	5 308	5 297	5 256	5 195	5 143
Extraprovincial										
Ontario	**850**	1 089	1 616	1 787	1 439	773	1 582	1 702	1 781	879
Saskatchewan	**231**	342	968	1 378	530	364	408	493	375	127
United States	**6 533**	3 150	3 299	3 966	3 718	1 004	534	1 031	1 394	986
Net Transfer to Winnipeg Hydro (000 000 kW.h)	**930**	1 245	1 163	977	918	1 191	1 107	816	818	791
Number of Customers										
Residential and Farm	**288 076**	285 175	281 479	279 080	273 779	262 877	253 910	245 129	236 685	229 610
Power, General Service and Misc.	**39 766**	39 804	39 629	39 129	38 840	38 496	38 027	37 957	37 795	37 082
Peak Number of Employees	**3 859**	3 850	3 899	4 164	4 411	4 826	4 865	4 993	4 602	4 178

**Corrected by System Losses applicable to Extraprovincial Sales*



FINANCIAL STATEMENTS

Auditors' Report F2

Consolidated Statement of Operations F3

Consolidated Balance Sheet ..... F4 - F5

Consolidated Statement of Reserves F6

Consolidated Statement of Changes in Financial Position F6

Notes to Consolidated Financial Statements ..... F7 - F8

Schedule of Investments F9

Schedule of Long-Term Debt ..... F9 - F11

Schedule of Sinking Fund Investments F12

AUDITORS' REPORT

We have examined the consolidated balance sheet of The Manitoba Hydro-Electric Board as at March 31, 1983 and the consolidated statements of operations, reserves and changes in financial position for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests and other procedures as we considered necessary in the circumstances.

In our opinion, these consolidated financial statements present fairly the financial position of the Corporation as at March 31, 1983 and the results of its operations and the changes in its financial position for the year then ended in accordance with the accounting principles set out in Note 1 to the financial statements applied on a basis consistent with that of the preceding year.

The comparative figures for 1982 were reported on by another firm of chartered accountants.

Peat, Marwick, Mitchell & Co.
CHARTERED ACCOUNTANTS

May 31, 1983
Winnipeg, Canada

Consolidated Statement of Operations
FOR THE YEAR ENDED MARCH 31, 1983 (with 1982 figures for comparison)

	1983	1982
	(thousands of dollars)	
REVENUES		
Sale of power ·		
Manitoba	$305 067	$311 354
Extraprovincial	105 411	72 384
Other revenue	4 217	3 865
	414 695	387 603
EXPENSES		
Operating and administrative	150 078	129 413
Depreciation—plant	61 718	60 127
Fuel and power purchased	8 192	16 711
	219 988	206 251
Net revenue before interest expense	194 707	181 352
INTEREST EXPENSE		
Interest on debt	272 640	254 061
Amortization of debt discount and expense	3 036	3 046
Interest applied to construction	(29 329)	(26 128)
Investment income	(32 511)	(25 435)
	213 836	205 544
NET EXPENSE TRANSFERRED TO RESERVES	$ 19 129	$ 24 192

The accompanying notes are an integral part of the financial statements.

Consolidated Balance Sheet
AS AT MARCH 31, 1983 (with 1982 figures for comparison)

ASSETS

	1983	1982
	(thousands of dollars)	
ELECTRIC UTILITY PLANT (at cost)		
In service	**$2 945 435**	$2 891 325
Less: Accumulated depreciation	**584 534**	524 720
	2 360 901	2 366 605
Construction in progress	**272 013**	202 544
	2 632 914	2 569 149
INVESTMENTS (at cost)—Schedule A	**5 332**	5 354
CURRENT ASSETS		
Temporary investments	**124 000**	30 500
Accounts receivable	**45 962**	46 361
Accrued revenue	**12 633**	13 161
Interest receivable and accrued	**7 721**	6 806
Materials and supplies (at average cost)	**26 864**	25 704
Prepaid expenses	**941**	1 337
	218 121	123 869
DEFERRED ASSETS		
Unamortized discount and other	**28 108**	27 442
	$2 884 475	$2 725 814

Approved on behalf of the Board:

Saul Cherniack, Chairman

C.E. Curtis, Vice-Chairman

LIABILITIES AND RESERVES

	1983	1982
	(thousands of dollars)	
LONG-TERM DEBT (Note 3)—Schedule B		
The Manitoba Hydro-Electric Board Bonds	$1 419 851	$1 510 803
Advances from the Province of Manitoba represented by Debenture Debt of the Province	1 227 228	964 184
Advances from the Province of Manitoba under a Loan Agreement between the Province and the Government of Canada	133 722	129 665
	2 780 801	2 604 652
Less: Sinking fund on deposit with The Minister of Finance—Schedule C	240 417	231 399
Less: Current portion (net of sinking fund)	172 823	75 366
	2 367 561	2 297 887
CURRENT LIABILITIES		
Bank balances	2 176	1 548
Accounts payable and accrued liabilities	29 653	28 177
Notes payable (due within one year)	100 644	102 744
Contract holdbacks	1 015	190
Accrued interest	81 942	75 672
Current portion of long-term debt	172 823	75 366
	388 253	283 697
DEFERRED LIABILITIES	11 680	10 107
DEFERRED CREDITS		
Contributions in aid of construction and other	34 954	32 967
RESERVES	82 027	101 156
	$2 884 475	$2 725 814

The accompanying notes are an integral part of the financial statements.

Consolidated Statement of Reserves
FOR THE YEAR ENDED MARCH 31, 1983 (with 1982 figures for comparison)

	1983			1982
	(thousands of dollars)			
	Contingency and General	Rate Stabilization	Total	Total
BALANCE - BEGINNING OF YEAR	$123 829	$(22 673)	$101 156	$125 348
Net expense transferred from operations	—	(19 129)	(19 129)	(24 192)
BALANCE - END OF YEAR	$123 829	$(41 802)	$ 82 027	$101 156

Consolidated Statement of Changes in Financial Position
FOR THE YEAR ENDED MARCH 31, 1983 (with 1982 figures for comparison)

	1983	1982
	(thousands of dollars)	
SOURCE OF FUNDS		
From operations		
Net expense	$ (19 129)	$ (24 192)
Provision for depreciation—plant	61 718	60 127
Amortization of debt discount and expense	3 036	3 046
Transportation fleet depreciation and other items	2 692	3 104
	48 317	42 085
Proceeds from long-term debt	273 963	175 393
Contributions and advances in aid of construction, less refunds	4 519	3 854
Other transactions—net	207	(102)
	327 006	221 230
APPLICATION OF FUNDS		
Additions to fixed assets	128 956	103 954
Decrease in long-term debt	172 840	75 387
Sinking fund payment	35 514	33 640
	337 310	212 981
INCREASE (DECREASE) IN WORKING CAPITAL	$ (10 304)	$ 8 249

The accompanying notes are an integral part of the financial statements.

Notes to the Consolidated Financial Statements FOR THE YEAR ENDED MARCH 31, 1983

NOTE 1—SIGNIFICANT ACCOUNTING POLICIES

The financial statements include the accounts of the Corporation and all of its wholly-owned inactive subsidiaries and have been prepared in accordance with generally accepted accounting principles except for the accounting for pension costs as noted in d) below.

a) Electric Utility Plant

The electric utility plant is stated at cost which consists of contracted services, direct labour, material and expense, a proportionate share of overhead costs and interest allocated at the effective rates incurred in financing construction. The cost of plant removed plus removal costs less salvage value is charged to accumulated depreciation.

Main facilities of major projects under construction become operational on a progressive basis. As such facilities become operational, related construction costs and a pro rata share of related common properties are transferred to plant in service. Once the transfer to plant in service is made, interest allocations to plant cost cease and depreciation commences.

Depreciation is provided on a straight line basis using the following estimated service lives for major assets:

Hydro-electric generation	67 years
Thermal-electric generation	33 years
Transmission lines and stations	35-50 years
Distribution lines	30-35 years

Depreciation of the transportation fleet amounting to $2 451 000 (1982 — $2 304 000) is included in the overall fleet cost which is allocated on a usage basis to capital and operating accounts and is therefore not included as part of the plant depreciation provision.

b) Reserves

The Corporation maintains the following reserves:

Contingency and General Reserve
An amount calculated as a percentage of net interest expense at a rate stipulated by The Manitoba Hydro-Electric Board, may be transferred annually to this reserve. A transfer was not made for the years ended March 31, 1983 and 1982.

Rate Stabilization Reserve
The net revenue or expense after provision for the contingency and general reserve is transferred annually to this reserve.

c) Foreign Exchange on Long-Term Debt

Long-term debt payable in foreign currencies is recorded at Canadian dollar equivalents using the exchange rates prevailing at the time the debt was incurred.

The Energy Rate Stabilization Act which came into force April 1, 1979 provides for the Province of Manitoba to relieve the Corporation of the costs associated with the foreign debt of Manitoba Hydro by replacing them with Canadian equivalent costs based on Canadian rates for similar terms as at the date the debt was incurred. The Province of Manitoba has confirmed to the Corporation that had the Province of Manitoba not assumed the cost of foreign debt at April 1, 1979 the valuation of the long-term debt of the Corporation as at March 31, 1983 would have been increased by approximately $321 million (1982 - $335 million) when translated at the year end rates of exchange. The Province of Manitoba also confirmed that the net expenditures relating to the debt sustained by the Province in the current year amounted to $6.5 million (1982 - $29.1 million) which if borne by the Corporation would have increased accordingly the excess expense over revenue of $19.1 million set out in the financial statements. The Canadian equivalent rates are set out in the long-term debt schedules attached as Schedule "B".

d) Pensions

In accordance with the provisions of the Manitoba Civil Service Superannuation Act, the Corporation contributes 50% of the pension disbursements made to retired employees. Such payments are charged to income as incurred and a provision is not made in the accounts to fund current or past service obligations of the Corporation to the Civil Service Superannuation Fund. On the basis of an actuarial report, the unfunded provision for the Corporation's employees amounted to $72 983 000 as at December 31, 1982 (1981 — $63 357 000).

NOTE 2—COMMITMENTS

a) Lease Commitments

In accordance with a lease agreement entered into during 1966 between the Governments of Canada and Manitoba, direct current transmission facilities were constructed between the Kettle Generating Station and Winnipeg. The agreement provides for repayment by the Corporation of the capital cost with accrued interest at 5.625% over a term of forty-five years in accordance with a repayment schedule requiring substantially smaller payments during the earlier years. The schedule provides for payment of $8 500 000 for the year ended March 31, 1983 (1982 — $7 000 000), and for the following annual increases in payments: 1984 — $1 500 000; 1985 to 1989 — $2 500 000. The progressive increases result in a payment in 1989 of $22 500 000. Payments for the fiscal years 1990 to 2019 will be calculated as the equal annual payment required to amortize the outstanding balance over thirty years at 5.625%. In addition, an annual payment of $596 000 is being made, until 1985, on account of the related microwave communications system. The unpaid balance of principal plus accrued interest for transmission and microwave facilities amounted to approximately $344 857 000 as at March 31, 1983 (1982 — $336 225 000).

The Corporation's policy is to charge the lease payments to operations in the period in which they become payable. This policy is consistent with the intent of the lease agreement of providing economic relief to ratepayers during the early years of the Nelson River development. This is evident when compared with a calculation of a charge in accordance with the C.I.C.A. recommendation on accounting for capital leases entered into subsequent to January 1, 1979, which indicates that an additional amount of approximately $14.6 million would have been charged to operations for the year and an additional asset net of depreciation amounting to approximately $197.5 million would have been recorded relating to the transmission facilities and microwave system.

b) Construction Commitments

Other outstanding commitments, principally for construction, were approximately $86 753 000 (1982 — $107 462 000).

NOTE 3—LONG-TERM DEBT

The Manitoba Hydro Act requires the Corporation to provide for an annual sinking fund installment to be paid to the Minister of Finance of the Province of Manitoba of not less than 1% of the principal amount of the outstanding debt on the preceding March 31, and 4% of the balance in the sinking fund at such date. Such installments under the statutory requirements would provide for the full retirement of a debt obligation only if the obligation was outstanding for forty-one years.

Income earned on sinking fund investments is remitted to the Corporation and is included with investment income for the year.

Schedule of Investments
AS AT MARCH 31, 1983

SCHEDULE A

Series	Coupon Rate	Due Date	Par Value	Cost
			(thousands of dollars)	
THE MANITOBA HYDRO-ELECTRIC BOARD BONDS:				
2H	6.250%	October 1, 1986	$ 50	$ 44
2L	6.500%	September 1, 1992	432	425
2P	7.250%	August 1, 1993	633	610
3D	8.375%	December 17, 1998	900	883
GOVERNMENT OF CANADA BONDS:				
T29	4.500%	September 1, 1983	3 340	3 307
GILLAM HOSPITAL, INC. BONDS:				
1A	6.500%	February 15, 1984-88	63	63
			$5 418	$5 332

Schedule of Long-Term Debt
AS AT MARCH 31, 1983 (with 1982 figures for comparison)

SCHEDULE B

Series	Coupon Rate	Canadian Equivalent Rate (note 1c)	Due Date	1983	1982
THE MANITOBA HYDRO-ELECTRIC BOARD BONDS: (guaranteed by the Province of Manitoba)				(thousands of dollars)	
PAYABLE IN CANADIAN DOLLARS:					
2T	7.375%		May 17, 1982	$ —	$ 8 000
1T	6.000%		August 30, 1982	—	22 000
1W	5.500%		October 1, 1982	—	20 000
1R	5.500%		November 15, 1982	—	16 775
1P	5.750%		March 15, 1983	—	19 500
2H	6.250%		October 1, 1986	20 000	20 000
2N	7.000%		November 15, 1987	7 300	7 300
2E	5.250%		March 1, 1988	20 000	20 000
2J	6.250%		February 1, 1989	25 000	25 000
2Q	9.000%		April 1, 1990	3 277	3 277
2S	8.000%		April 1, 1991	40 000	40 000
2U	8.500%		September 15, 1991	35 000	35 000
2V	8.000%		October 15, 1991	10 000	10 000
2Y	7.875%		April 5, 1992	50 000	50 000
2K	6.000%		April 15, 1992	35 000	35 000
2Z	8.250%		August 31, 1992	40 000	40 000
2L	6.500%		September 1, 1992	20 000	20 000
2P	7.250%		August 1, 1993	25 000	25 000
3G	10.000%		June 10, 1994	47 000	47 000
3B	8.375%		August 1, 1998	35 000	35 000
3D	8.375%		December 17, 1998	40 000	40 000
				$452 577	$538 852

Schedule of Long-Term Debt

AS AT MARCH 31, 1983 (with 1982 figures for comparison)

SCHEDULE B

Series	Coupon Rate	Canadian Equivalent Rate (note 1c)	Due Date	1983	1982
THE MANITOBA HYDRO-ELECTRIC BOARD BONDS: (guaranteed by the Province of Manitoba)				(thousands of dollars)	
PAYABLE IN U.S. DOLLARS:					
3J	9.500%	10.500%	October 1, 1985 ($125 000 000 U.S.) ...	**$128 183**	$128 183
1Y	4.250%	4.840%	February 15, 1986 ($28 000 000 U.S.) ...	**30 230**	30 230
1U	4.875%	5.680%	March 1, 1988 ($25 000 000 U.S.)	**26 927**	26 927
1Z	4.500%	5.190%	October 1, 1989 ($25 000 000 U.S.)	**26 914**	26 914
2F	4.750%	5.570%	November 1, 1990 ($9 000 000 U.S.)....	**9 681**	9 681
2G	4.750%	5.570%	November 15, 1990 ($4 500 000 U.S.)...	**4 836**	4 836
3A	7.650%	8.170%	October 15, 1997 ($60 000 000 U.S.) ...	**58 929**	58 929
3M	9.250%	10.220%	June 30, 2001 ($125 000 000 U.S.).....	**121 470**	121 470
3C	8.000%	8.570%	October 15, 2003 ($60 000 000 U.S.) ...	**59 803**	59 803
3E	9.250%	10.130%	June 15, 2004 ($100 000 000 U.S.).....	**97 213**	97 213
3H	9.375%	10.070%	December 1, 2004 ($100 000 000 U.S.)..	**98 959**	98 959
3L	9.250%	10.290%	January 15, 2006 ($125 000 000 U.S.)...	**125 405**	125 405
3N	8.625%	9.340%	December 1, 2006 ($125 000 000 U.S.)..	**126 773**	126 773
				$915 323	$915 323
PAYABLE IN DEUTSCHE MARKS:					
2X	6.750%	7.840%	June 1, 1983-87 (DM 55 000 000).....	**$ 16 841**	$ 19 903
PAYABLE IN SWISS FRANCS:					
3K	7.750%	9.780%	November 10, 1990 (Sfr 80 000 000)	**$ 31 074**	$ 31 074
PAYABLE IN POUNDS STERLING:					
	6.000%		Sterling loan due April 1, 1983 to April 1, 1985 (£1 914 491)	**$ 4 036**	$ 5 651
THE MANITOBA HYDRO-ELECTRIC BOARD BONDS—TOTAL				**$1 419 851**	$1 510 803
ADVANCES FROM THE PROVINCE OF MANITOBA REPRESENTED BY DEBENTURE DEBT OF THE PROVINCE:					
PAYABLE IN CANADIAN DOLLARS:					
10A	9.250%		April 30, 1983-85	**$ 9 000**	$ 12 000
11G	15.750%		March 25, 1988	**75 000**	75 000
10V	9.750%		December 1, 1988.....	**50 000**	50 000
11D	13.750%		March 31, 1991	**110 000**	110 000
11R	11.750%		March 15, 1993	**150 000**	—
9R	8.750%		October 1, 1993	**31 000**	31 000
				$425 000	$278 000
PAYABLE IN U.S. DOLLARS:					
10B	9.250%	9.040%	April 30, 1983-85 ($9 000 000 U.S.)	**$ 9 166**	$ 12 220
10F	8.750%	9.600%	April 15, 1983 ($50 000 000 U.S.).....	**49 138**	49 138
9Z	8.375%/ 9.000%	9.900%	April 1, 1985 or April 1, 1995 ($20 000 000 U.S.)	**20 186**	20 186
11L	13.750%	15.300%	September 29, 1989 ($50 000 000 U.S.) .	**61 370**	—
11N	11.750%	13.250%	November 15, 1989 ($50 000 000 U.S.)..	**61 363**	—
11E	14.750%	15.900%	July 1, 1991 ($50 000 000 U.S.)	**59 953**	59 953
9J	6.875%	7.580%	November 1, 1993 ($50 000 000 U.S.)....	**53 613**	53 613
9K	7.875%	7.880%	April 1, 1994 ($35 000 000 U.S.).....	**37 692**	37 692
9U	8.375%	10.060%	May 1, 1994 ($24 000 000 U.S.)	**23 446**	23 446
9M	8.875%	8.490%	November 15, 1994 ($50 000 000 U.S.)..	**53 735**	53 735
10D	8.875%/ 9.625%	10.400%	November 15, 1995 ($20 000 000 U.S.)..	**20 138**	20 138
				$449 800	$330 121

Schedule of Long-Term Debt

AS AT MARCH 31, 1983 (with 1982 figures for comparison)

SCHEDULE B

Series	Coupon Rate	Canadian Equivalent Rate (note 1c)	Due Date	1983	1982
				(thousands of dollars)	
ADVANCES FROM THE PROVINCE OF MANITOBA REPRESENTED BY DEBENTURE DEBT OF THE PROVINCE:					
PAYABLE IN DEUTSCHE MARKS:					
10N	6.500%	8.110%	July 1, 1984 (DM 150 000 000)	**$ 67 578**	$ 67 578
PAYABLE IN SWISS FRANCS:					
10U	4.125%	9.200%	August 10, 1983 (Sfr 100 000 000)	**$ 66 725**	$ 66 725
10P	4.500%	8.520%	November 1, 1983 (Sfr 100 000 000)	**49 798**	49 798
11F	7.000%	17.020%	February 22, 1992 (Sfr 60 508 156)	**38 580**	38 580
10R	4.000%	9.380%	May 18, 1993 (Sfr 95 000 000)	**53 680**	56 505
				$208 783	$211 608
PAYABLE IN EUROPEAN UNITS OF ACCOUNT:					
9L	7.000%	7.270%	June 17, 1983-89 (6 750 000 European Units of Account)	**$ 7 290**	$ 8 100
PAYABLE IN JAPANESE YEN:					
10Q	6.700%	8.830%	January 30, 1984-90 (¥15 000 000 000)	**$ 68 777**	$ 68 777
ADVANCES FROM THE PROVINCE OF MANITOBA REPRESENTED BY DEBENTURE DEBT OF THE PROVINCE—TOTAL				**$1 227 228**	$964 184
ADVANCES FROM THE PROVINCE OF MANITOBA UNDER A LOAN AGREEMENT BETWEEN THE PROVINCE AND THE GOVERNMENT OF CANADA:					
PAYABLE IN CANADIAN DOLLARS:					
	9.000%		March 31, 1984 to 2009	**$ 65 649**	$ 66 323
	9.250%		March 31, 1984 to 2009	**45 215**	45 649
	9.625%		March 31, 1984 to 2009	**11 751**	11 855
	11.875%		March 31, 1984 to 2015	**1 952**	1 955
	13.750%		March 31, 1984 to 2015	**1 365**	1 304
	15.625%		March 31, 1984 to 2015	**2 970**	2 579
	12.000%		March 31, 1984 to 2015	**4 820**	—
ADVANCES FROM THE PROVINCE OF MANITOBA UNDER A LOAN AGREEMENT BETWEEN THE PROVINCE AND THE GOVERNMENT OF CANADA—TOTAL				**$133 722**	$129 665
LONG-TERM DEBT—TOTAL				**$2 780 801**	$2 604 652

Schedule of Sinking Fund Investments

(on deposit with the Minister of Finance of the Province of Manitoba)

AS AT MARCH 31, 1983

SCHEDULE C

Series	Coupon Rate	Due Date	Par Value	Cost
			(thousands of dollars)	
THE MANITOBA HYDRO-ELECTRIC BOARD BONDS:				
2H	6.250%	October 1, 1986	$ 8 011	$ 6 432
2N	7.000%	November 15, 1987	2 178	1 716
1U	4.875%	March 1, 1988	550 U.S.	418
2E	5.250%	March 1, 1988	9 003	6 589
2J	6.250%	February 1, 1989	8 270	6 167
2Q	9.000%	April 1, 1990	1 455	1 289
2F	4.750%	November 1, 1990	575 U.S.	406
2S	8.000%	April 1, 1991	8 730	7 510
2U	8.500%	September 15, 1991	9 503	8 340
2V	8.000%	October 15, 1991	2 650	2 510
2Y	7.875%	April 5, 1992	14 594	12 396
2K	6.000%	April 15, 1992	10 068	7 207
2Z	8.250%	August 31, 1992	11 320	9 358
2L	6.500%	September 1, 1992	3 788	2 683
2P	7.250%	August 1, 1993	11 192	9 595
3G	10.000%	June 10, 1994	15 350	14 502
3A	7.650%	October 15, 1997	7 310 U.S.	7 018
3B	8.375%	August 1, 1998	12 663	10 152
3D	8.375%	December 17, 1998	8 906	7 219
3C	8.000%	October 15, 2003	3 649 U.S.	3 341
3E	9.250%	June 15, 2004	1 529 U.S.	1 505
3H	9.375%	December 1, 2004	1 110 U.S.	1 211
3L	9.250%	January 15, 2006	897 U.S.	870
PROVINCE OF MANITOBA DEBENTURES:				
10A	9.250%	April 30, 1983-85	1 653	1 564
9R	8.750%	October 1, 1993	4 514	3 874
9J	6.875%	November 1, 1993	6 400 U.S.	5 990
9K	7.875%	April 1, 1994	5 780 U.S.	5 712
9M	8.875%	November 15, 1994	4 115 U.S.	4 252
9X	10.000%	December 5, 1999	155	148
MANITOBA TELEPHONE SYSTEM BONDS:				
1B	5.500%	November 15, 1983	666	612
1D	5.250%	December 1, 1984	6	5
1C	5.500%	December 2, 1986	502	402
1M	8.000%	September 15, 1989	24	21
1N	7.875%	November 15, 1991	708	561
1F	6.250%	December 1, 1991	2 009	1 231
1G	7.000%	February 15, 1993	98	81
1S	8.750%	March 1, 1999	1 095	904
UNIVERSITY OF MANITOBA DEBENTURES:				
1J	5.375%	November 1, 1983	315	298
1H	5.625%	October 15, 1987	250	255
PROVINCE OF QUEBEC DEBENTURES:				
D	5.250%	August 1, 1985	289	288
QUEBEC HYDRO-ELECTRIC COMMISSION BONDS:				
AF	5.750%	October 1, 1984	100	104
B.C. HYDRO AND POWER AUTHORITY BONDS:				
AH	5.875%	January 2, 1992	15 U.S.	10
ONTARIO HYDRO BONDS:				
GBC	8.000%	May 15, 1998	1 250	1 083
BANK OF MONTREAL BANKERS ACCEPTANCE:				
	11.750%	April 21, 1983	5 000	5 000
				160 829
CASH ON DEPOSIT				79 588
				$240 417

Manitoba Hydro Generating Stations and Capacities

For the Year Ended March 31, 1983 (Normal Winter Capability)

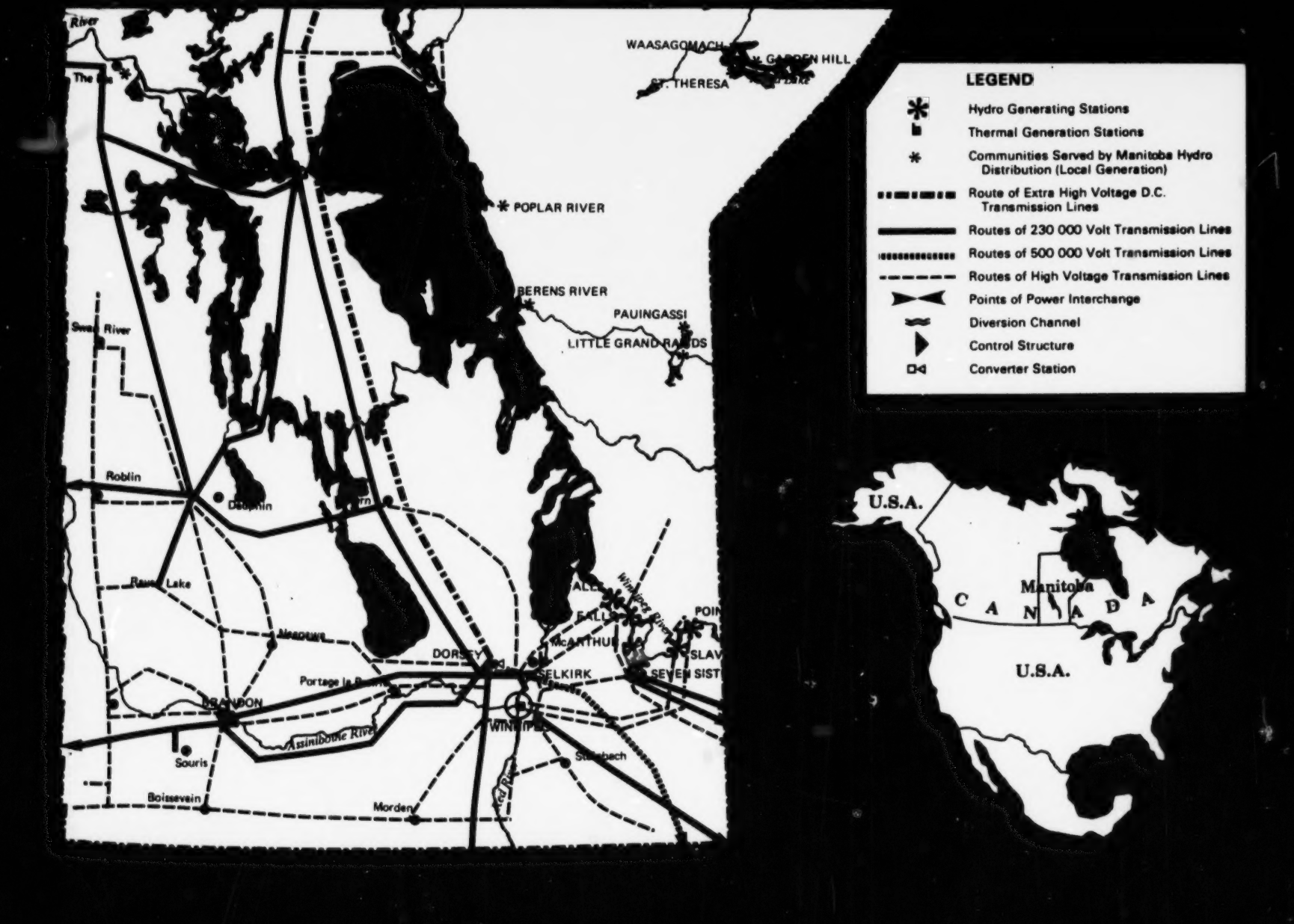
INTERCONNECTED CAPABILITIES

	STATION	LOCATION	No. of Units	Winter Capacity in Kilowatts
HYDRAULIC:	Great Falls	Winnipeg River	6	132 000
	Seven Sisters	Winnipeg River	6	150 000
	Pine Falls	Winnipeg River	6	82 000
	McArthur Falls	Winnipeg River	8	56 000
	Grand Rapids	Saskatchewan River	4	472 000
	Kelsey	Nelson River	7	224 000
	Kettle	Nelson River	12	1 272 000
	Jenpeg	Nelson River	6	126 000
	Long Spruce	Nelson River	10	980 000
	Laurie River (2)	Laurie River	3	10 000
	TOTAL HYDRAULIC			3 504 000
THERMAL:	Brandon		5	237 000
	Selkirk		2	132 000
	TOTAL THERMAL			369 000
GAS TURBINE:	Selkirk		2	25 000
DIESEL:	The Pas		4	3 150
	TOTAL			3 901 150

ISOLATED CAPACITIES

DIESEL:	Berens River	1 100
	Brochet	650
	Churchill	11 248
	Garden Hill	1 600
	God's Lake Narrows	1 400
	God's River	350
	Granville Lake	60
	Little Grand Rapids	425
	Lac Brochet	525
	Oxford House	1 100
	Pauingassi	300
	Pikwitonei	350
	Poplar River	650
	Pukatawagan	850
	Red Sucker Lake	525
	St. Theresa	1 275
	Shamattawa	525
	Tadoule Lake	600
	Thicket Portage	300
	Waasagomach	900
	TOTAL	24 733
TOTAL GENERATING CAPACITY		**3 925 883**

manitoba hydro
THE PROVINCE OF MANITOBA
Power Sources and High Voltage Transmission
AS AT MARCH 31, 1983
LAC BROCHET
TADOULE LAKE
BROCHET
CHURCHILL
MISSI FALLS
Churchill River
Lynn Lake
Fox Lake
HENDAY
KETTLE
LONG SPRUCE
Rutter Lake
LAURIE RIVER NO. 1 & NO. 2
GRANVILLE LAKE
NOTIGI
Nelson River
KELSEY
RADISSON
Rat River
PUKATAWAGAN
Thompson
SHAMATTAWA
PIKWITONEI
Burntwood River
Hayes River
Gods River
THICKET PORTAGE
OXFORD HOUSE
GODS RIVER
Flin Flon
JENPEG
GODS LAKE NARROWS
RED SUCKER LAKE


WAASAGOMACH
ST. THERESA
POPLAR RIVER
BERENS RIVER
PAUINGASSI
LITTLE GRAND RAPIDS
Roblin
Dauphin
Russell
Minnedosa
Portage la Prairie
BRANDON
Souris
Boissevain
Morden
Assiniboine River
SELKIRK
WINNIPEG
Steinbach
LEGEND
Hydro Generating Stations
Thermal Generation Stations
Communities Served by Manitoba Hydro Distribution (Local Generation)
Route of Extra High Voltage D.C. Transmission Lines
Routes of 230 000 Volt Transmission Lines
Routes of 500 000 Volt Transmission Lines
Routes of High Voltage Transmission Lines
Points of Power Interchange
Diversion Channel
Control Structure
Converter Station
U.S.A.
Manitoba
C A N A D A
U.S.A.

POOR

QUALITY

ORIGINAL